CLAIMS

What is claimed is:

1. A thin pointing apparatus, comprising:

a base;

a rotary disk, being pivotally connected to the base and forming a pivotal connecting part; and

a circuit board, being associated with the base with a central hole thereof being passed through by the pivotal connecting part; wherein

the circuit board further comprises

a microprocessor;

at least two conductive annular rails, being arranged sequentially and connected to the microprocessor; and

two photo-interrupters, being connected to the microprocessor; and

the rotary disk further comprises

at least one conductive plate, being disposed at a lower side of the rotary disk and the at least one conductive plate spacing apart an equivalent angle each other corresponding to the annular rails, which are disposed underneath the rotary disk, being able to touch the two conductive annular rails during being pressed by a user from an upper side thereof; and

a first photo interruption set, being arranged annularly with a plurality of equidistant photo interrupting stripes and the photo interrupting stripes being above and corresponding to the two photo-interrupters,

2. The thin pointing apparatus according to claim 1, wherein the rotary disk at the lower side thereof provides four conductive plates spacing 90°apart from each other.

3. The thin pointing apparatus according to claim 1, wherein rotary disk at the lower side thereof is attached with an elastic ring plate, the elastic ring plate being provided with at least a press button equiangular spaced apart each other and the at least press button piercing a hole arranged in the rotary disk with the press button at a lower end thereof being joined to the conductive plate respectively.

4. The thin pointing apparatus according to claim 1, wherein the rotary disk provides slits at both lateral sides of the conductive plates respectively and the two slits at lower ends thereof communicate with each other by a flute so that the conductive plates touch the annular rails respectively only not to influence rest parts of the rotary disk as soon as the user presses down the conductive plates.

5. The thin pointing apparatus according to claim 1, wherein the circuit board is associated with another photo-interrupter; the rotary disk further has a second interruption set arranged annularly and the second interruption set includes a plurality of second photo interruption stripes and non-stripe parts arranged with binary codes; and the second photo interruption set is above and corresponding to another photo-interrupter.

6. The thin pointing apparatus according to claim 1, wherein the rotary disk is received in an upper hole of a case and the base with the circuit board is disposed in the case; and the case further joins with at least two switch buttons, which are connected to the microprocessor with lead wires.

7. The thin pointing apparatus according to claim 3,

wherein the circuit board is associated with five conductive annular rails.

8. The thin pointing apparatus according to claim 3, wherein the circuit board joins six conductive annular rails.

9. The thin pointing apparatus according to claim 7, wherein each of the photo interruption stripes in the second photo-interruption set has the same angular arrangement as one of the photo interruption stripes in the first interruption set.

10. The thin pointing apparatus according to claim 6, wherein the case is a USB hub with a USB socket at a back thereof.

11. The thin pointing apparatus according to claim 6, wherein one of the switch buttons is a micro-adjustment button for a cursor.

12. The thin pointing apparatus according to claim 6, wherein one of the switch buttons is a control button for rolling a window on a screen.

13. The thin pointing apparatus according to claim 8, wherein the second and the fifth ones of the six conductive annular rails are grounded respectively.

14. The thin pointing apparatus according to claim 9, wherein the second interruption set is disposed at an inner side of the first interruption set.

15, The thin pointing apparatus according to claim 9, wherein the first photo interruption set has 60 recesses.

16. The thin pointing apparatus according to claim 9, wherein the second photo interruption set has second photo interruption stripe sets being designated as 0 and

the non-recess parts have four stripes and are designated as 1 with an arrangement of continuous binary codes.

17. The thin pointing apparatus according to claim 13, wherein the rotary disk is received in an upper hole of a case and the base with the circuit board is disposed in the case; and the case further joins with at least two switch buttons, which are connected to the microprocessor with lead wires.

18. The thin pointing apparatus according to claim 17, wherein the case is a USB hub with a USB socket at a back thereof.

19. The thin pointing apparatus according to claim 17, wherein the circuit board is associated with another photo-interrupter; the rotary disk further has second interruption set arranged annularly and the second interruption set includes a plurality of second photo-interruption stripes and non-recess parts arranged with binary codes; and the second photo interruption set is disposed over and corresponding to another photo-interrupter.

20. The thin pointing apparatus according to claim 19, wherein each of the photo interruption stripes in the second photo-interruption set has the same angular arrangement as one of the photo interruption stripes in the first interruption set.